AMENDMENTS TO THE CLAIMS

Claims 1-7. (Canceled)

8. (New) An apparatus for reprocessing spent nuclear fuel, comprising:

a dissolving tank having an inlet in a lower part thereof;

a powder supply system, in communication with said inlet, for continuously supplying powder of spent nuclear fuel through said inlet and into a lower portion of said dissolving tank;

an agitating member rotatably disposed in said dissolving tank; and

rise inhibiting structure, disposed in said dissolving tank above said agitating member, for inhibiting non-dissolved powder of the spent nuclear fuel from rising while allowing a solution including dissolved powder of the spent nuclear fuel to flow upwardly past said rise inhibiting structure.

9. (New) The apparatus according to claim 8, further comprising:

a nitric acid supply system for supplying nitric acid into said lower portion of said dissolving tank such that the solution including dissolved powder of the spent nuclear fuel is a solution including powder of the spent nuclear fuel that has been dissolved by the nitric acid supplied into said lower portion of said dissolving tank; and

a solution discharge system for discharging the solution from an upper part of said dissolving tank after the solution has flowed past said rise inhibiting structure.

10. (New) The apparatus according to claim 9, further comprising:

a steam jacket, surrounding an outer peripheral surface of said dissolving tank, for allowing steam to be supplied between said steam jacket and said outer peripheral surface of said dissolving tank so as to heat said dissolving tank.

11. (New) The apparatus according to claim 10, wherein

said rise inhibiting structure comprises fixed blades for causing the non-dissolved powder, which would otherwise swirl and rise past said fixed blades due to rotation of said agitating member, to move downward.

12. (New) The apparatus according to claim 11, wherein

each of said fixed blades has a descending slope with respect to a swirling direction of the non-dissolved powder during swirling and rising of the non-dissolved powder to said fixed blades.

13. (New) The apparatus according to claim 12, further comprising:

a top board, having a number of distribution apertures, above said fixed blades.

14. (New) The apparatus according to claim 10, wherein

said rise inhibiting structure comprises half-round shaped swirl and rise inhibiting plates arranged one above another and overlapping one another in an axial direction of said dissolving tank, with each of said rise inhibiting plates having a slope ascending outwardly.

15. (New) The apparatus according to claim 10, wherein

said rise inhibiting structure comprises a reversed-conical shaped swirl and rise inhibiting vane having a central distribution hole.

16. (New) The apparatus according to claim 10, further comprising:

a shaft supporting said agitating member,

wherein said rise inhibiting structure has

(i) an outer peripheral surface abutting an inner surface of said dissolving tank, and

(ii) a central hole through which said shaft extends with a slight clearance,

such that the solution is to flow past said rise inhibiting structure by flowing through said slight clearance.

17. (New) The apparatus according to claim 8, further comprising:

a shaft supporting said agitating member,

wherein said rise inhibiting structure has

(i) an outer peripheral surface abutting an inner surface of said dissolving tank, and

(ii) a central hole through which said shaft extends with a slight clearance,

such that the solution is to flow past said rise inhibiting structure by flowing through said slight clearance.

18. (New) An apparatus for reprocessing spent nuclear fuel, comprising:

a dissolving tank having an inlet in a lower part thereof;

a powder supply system, in communication with said inlet, for continuously supplying powder of spent nuclear fuel through said inlet and into a lower portion of said dissolving tank;

an agitating member rotatably disposed in said dissolving tank; and

means for inhibiting non-dissolved powder of the spent nuclear fuel from rising while allowing a solution including dissolved powder of the spent nuclear fuel to flow upwardly past said means.

19. (New) The apparatus according to claim 18, further comprising:

a nitric acid supply system for supplying nitric acid into said lower portion of said dissolving tank such that the solution including dissolved powder of the spent nuclear fuel is a solution including powder of the spent nuclear fuel that has been dissolved by the nitric acid supplied into said lower portion of said dissolving tank; and

a solution discharge system for discharging the solution from an upper part of said dissolving tank after the solution has flowed past said means.

20. (New) The apparatus according to claim 19, further comprising:

a steam jacket, surrounding an outer peripheral surface of said dissolving tank, for allowing steam to be supplied between said steam jacket and said outer peripheral surface of said dissolving tank so as to heat said dissolving tank.

21. (New) The apparatus according to claim 20, wherein

said means for inhibiting non-dissolved powder of the spent nuclear fuel from rising while allowing a solution including dissolved powder of the spent nuclear fuel to flow upwardly past said means comprises fixed blades for causing the non-dissolved powder, which would otherwise swirl and rise past said fixed blades due to rotation of said agitating member, to move downward.

22. (New) The apparatus according to claim 21, wherein

each of said fixed blades has a descending slope with respect to a swirling direction of the non-dissolved powder during swirling and rising of the non-dissolved powder to said fixed blades.

23. (New) The apparatus according to claim 22, further comprising:

a top board, having a number of distribution apertures, above said fixed blades.

24. (New) The apparatus according to claim 20, wherein

said means for inhibiting non-dissolved powder of the spent nuclear fuel from rising while allowing a solution including dissolved powder of the spent nuclear fuel to flow upwardly past said means comprises half-round shaped swirl and rise inhibiting plates arranged one above another and overlapping one another in an axial direction of said dissolving tank, with each of said rise inhibiting plates having a slope ascending outwardly.

25. (New) The apparatus according to claim 20, wherein

said means for inhibiting non-dissolved powder of the spent nuclear fuel from rising while allowing a solution including dissolved powder of the spent nuclear fuel to flow upwardly past said means comprises a reversed-conical shaped swirl and rise inhibiting vane having a central distribution hole.

26. (New) The apparatus according to claim 20, further comprising:

a shaft supporting said agitating member,

wherein said means for inhibiting non-dissolved powder of the spent nuclear fuel from rising while allowing a solution including dissolved powder of the spent nuclear fuel to flow upwardly past said means has

(i) an outer peripheral surface abutting an inner surface of said dissolving tank, and

(ii) a central hole through which said shaft extends with a slight clearance,

such that the solution is to flow past said means by flowing through said slight clearance.

27. (New) The apparatus according to claim 18, further comprising:

a shaft supporting said agitating member,

wherein said means for inhibiting non-dissolved powder of the spent nuclear fuel from rising while allowing a solution including dissolved powder of the spent nuclear fuel to flow upwardly past said means has

(i) an outer peripheral surface abutting an inner surface of said dissolving tank, and

(ii) a central hole through which said shaft extends with a slight clearance,

such that the solution is to flow past said means by flowing through said slight clearance.